

WHAT IS CLAIMED IS:

1. A method for isolating monocytes comprising:
  - a) filtering a blood component mixture rich in monocytes through a monocyte-adhering filter;
  - 5       b) chasing the blood component mixture through the filter with a physiological solution;
  - c) backflushing the filter with a physiological solution; and
  - d) backflushing the filter with a physiologically compatible viscous solution.
- 10   2. The method of claim 1 wherein the monocyte-adhering filter is a non-woven filter that passes about 90% of the red cells in a blood component mixture, and about 75% platelets, yet retains at least about 75 to 100% monocytes, about 20 to 80% leukocytes, and 10 to 50% granulocytes.
- 15   3. The method of claim 1 wherein the monocyte-adhering filter is a non-woven filter of superfine polyethylene terephthalate fibers coated with about 97% 2-hydroxyethyl methacrylate and about 3% *N,N*-dimethylaminoethyl methacrylate.
- 20   4. The method claim 1 wherein the physiological solutions of steps b) and c) are independently selected from the group consisting of saline and culture medium.
5. The method of claim 1 wherein the physiological solutions of steps b) and c) are at about 37°C.
6. The method of claim 1 wherein the physiologically compatible viscous solution comprises a solution selected from the group consisting of Dextran-

40, hydroxyethyl starch, and polyethylene glycol.

7. The method of claim 1 wherein the viscous solution is a Dextran-40/albumin mixture at about 1-6°C.

8. An apparatus for effecting aseptic collection of monocytes comprising:

- 5       a) a chamber bisected by a monocyte-adhering filter having an anterior and a posterior side;
- b) a first fluid communication means for introducing a fluid to the chamber on the anterior side of the filter;
- c) a second fluid communication means for removing a filtrate from the  
10       chamber at the posterior side of the filter;
- d) a third fluid communication means for introducing a fluid to the chamber at the posterior side of the filter;
- e) a fourth fluid communication means for removing fluid from the chamber on the anterior side of the filter; and
- 15       wherein each of the fluid communication means can be independently isolated from fluid communication with the chamber and the other fluid communication means.

9. The apparatus of claim 8 wherein the monocyte-adhering filter passes about 90% of the red cells in a blood component mixture, and about 75% platelets,  
20       yet retain at least about 75 to 100% monocytes, about 20 to 80% leukocytes, and 10 to 50% granulocytes.

10. The apparatus of claim 8 wherein the monocyte-adhering filter is a non-woven filter of superfine polyethylene terephthalate fibers coated with about 97% 2-hydroxyethyl methacrylate and about 3% *N,N*-dimethylaminoethyl  
25       methacrylate.

11. The apparatus of claim 8 wherein the monocyte-adhering filter passes about 90% red cells and about 75% platelets, while retaining at least about 86% monocytes, about 74% lymphocytes, and about 31% granulocytes.